REMARKS/ARGUMENTS

Claims 1-3, 5-14, and 16-21 remain in the application. Claims 1, 2, 5, 8-10, 16-17, and 20-21 have been amended. Claims 4 and 15 have been canceled. A minor amendment has been made to the specification. The length of the Abstract has been reduced. Reconsideration of this application, as amended, is respectfully requested.

The specification has been amended to correct the definition of the expression "insulating layer." Support for this amendment can be found at page 3, lines 15-17 of the specification and at page 4, lines 3-7 of the specification.

Claim 1 has been amended to specify that the electrochemical cell comprises an insulating substrate and a plurality of layers, the layers comprising at least two conducting layers, wherein one of the conducting layers is a working electrode, the working electrode being in contact with at least one reagent, and at least two insulating layers, wherein the insulating substrate or at least one of the at least two insulating layers is interposed between said at least two conducting layers, wherein each major surface of each conducting layer is in contact with a major surface of the insulating substrate or a major surface of at least one of the at least two insulating layers. Support for this amendment can be found at page 3, lines 12-15 of the specification, at page 3, lines 22-24 of the specification, at page 8, lines 4-6 of the specification, at page 13, lines 7-19 of the specification, and FIGS. 2, 4, 6, and 8.

Claim 2 has been amended to correct a typographical error.

Claim 5 has been amended to conform to claim 1, as amended. Support for this amendment can be found at page 10, line 23 through page 11, line 6 of the specification, and in claim 5, as originally filed.

Claims 8-10 have been amended to improve the phraseology thereof.

Claims 16 and 17 have been amended to depend from claim 1.

Claim 20 has been amended to specify that the insulating substrate is interposed between two conducting layers. Support for this amendment can be found at page 8, lines 4-7 of the specification.

Claim 21 has been amended to specify that the at least one insulating layer is interposed between two conducting layers. Support for this amendment can be found at page 8, lines 4-7 of the specification.

Claims 1-10, 15-17, 20, and 21 were rejected under 35 U. S. C. §102 (a) as being anticipated by Hodges (WO 03/032411 A2). This rejection is respectfully traversed for the following reasons.

Hodges, WO 03/032411 A2 (hereinafter "Hodges"), discloses electrochemical cells including a first working electrode 32, a first counter electrode 34, a second working electrode 36, and a second counter electrode 38, wherein the electrodes are spaced such that reaction products from the first counter electrode 34 arrive at the first working electrode 32, and reaction products from the first and second counter electrodes 34, 38 do not reach the second working electrode 36. Hodges also discloses a method of using such electrochemical cells for determining the concentration of a reduced or oxidized form of a redox species with greater accuracy than can be obtained using an electrochemical cell having a single working and counter electrode.

Claims 1-3, 5-14, and 16-21, as amended, require that the electrochemical cell comprise an insulating substrate and a plurality of layers. Claims 1-3, 5-14, and 16-21, as amended, require that the layers comprise at least two conducting layers, wherein one of the conducting layers is a working electrode, and at least two insulating layers. Claims 1-3, 5-14, and 16-21, as amended, further require that the insulating substrate or at least one of the at least two insulating layers be interposed between the at least two conducting layers.

Hodges discloses an electrochemical cell having a first working electrode 32 and a first counter electrode 34. However, there is no insulating substrate or insulating layer between the first working electrode 32 and the first counter electrode 34. Hodges also discloses an electrochemical cell having a second working electrode 36 and a second counter electrode 38. However, there is no insulating substrate or insulating layer between the second working electrode 36 and the second counter electrode 38. See FIG. 1 of Hodges. Hodges also discloses an electrochemical cell having electrodes 52, 54, 56, and 58. However, there is no insulating substrate or insulating layer between any pair of electrodes 52, 54, 56, and 58. See FIG. 2

of Hodges. For these reasons, Hodges does not anticipate claims 1-3, 5-14, and 16-21 of this application, as amended.

Claims 1-9, 11, 13-17, 20, 21 were rejected under 35 U. S. C. §102 (b) as being anticipated by the English language translation of Urban (WO 90/12314 A1). This rejection is respectfully traversed for the following reasons.

Urban, WO 90/12314 A1 (hereinafter "Urban"), discloses a micro-multi-electrode arrangement for electrochemical measurement and generation of electroactive species, where the electrodes are arranged upon a carrier, characterized in that an internal electrode and at least two additional electrodes are provided with the internal electrode being wired as reference electrode and with the other electrodes at least partly surrounding the internal electrode in the projection upon carrier.

Urban discloses an electrochemical cell having an electrode 1, typically a reference electrode, an electrode 2, an insulation layer 4, a counter electrode 3, and an inert carrier 5. See FIGS. 10-13 of Urban. According to each embodiment described in Urban, one major surface of the electrode 2 is in contact with the inert carrier 5, but the other major surface of the electrode 2 is exposed, i.e., not in contact with the insulation layer 4 or with the inert carrier 5. Claims 1-3, 5-14, and 16-21, as amended, require that each major surface of each conducting layer be in contact with a major surface of the insulating substrate or a major surface of at least one of the insulating layers. For this reason, Urban does not anticipate claims 1-3, 5-14, and 16-21 of this application, as amended.

Claims 1-13 and 15-21 were rejected under 35 U. S. C. § 102 (a) as being anticipated by Hyland (WO 03/056319 A2). This rejection is respectfully traversed for the following reasons.

Hyland et al., WO 03/056319 A2 (hereinafter "Hyland et al."), discloses an electrochemical cell which, either alone or in combination with a substrate onto which it is placed, is in the form of a receptacle, the cell comprising a counter electrode and a working electrode, wherein at least one electrode has at least one dimension of less than 50 μm, the working electrode being in a wall of the receptacle.

Claims 1-3, 5-14, and 16-21, as amended, require that the electrochemical cell comprise an insulating substrate and a plurality of layers. Claims 1-3, 5-14, and 16-21, as amended, require that the layers comprise at least two conducting layers, wherein one of the conducting layers is a working electrode, and at least two insulating layers. Claims 1-3, 5-14, and 16-21, as amended, further require that the insulating substrate or at least one of the at least two insulating layers be interposed between the at least two conducting layers. Claims 1-3, 5-14, and 16-21, as amended, further require that each major surface of each conducting layer be in contact with a major surface of the insulating substrate or a major surface of at least one of the insulating layers. Claims 1-3, 5-14, and 16-21, as amended, still further require that the working electrode be in contact with at least one reagent. According to Hyland et al., at page 10, lines 25-28 of the specification:

> The electro-active substance 8 is typically inserted into the receptacle in such a position that the electro-active substance is not in contact with the working electrode. This ensures that fouling of the working electrode is minimised or avoided.

Thus, Hyland et al. completely teaches away from claims 1-3, 5-14, and 16-21 of this application as amended. For this reason, it is submitted that Hyland et al. does not anticipate claim 1-3, 5-14, and 16-21 of this application, as amended.

Claim 1 was rejected under 35 U. S. C. §102 (a) as being anticipated by Fritsch et al. (US 2003/0015422 A1). This rejection is respectfully traversed for the following reasons.

Fritsch et al., US 2003/0015422 A1 (hereinafter "Fritsch et al."), discloses a three-dimensional microfabricated device wherein edges of a lipid bi-layer are anchored by alkanethiol derivitized inner edges of gold layers in an etched region of insulator and wherein a bottom of the device is lined with an insulator layer.

Fritsch et al. does not disclose that the cavity electrode system described therein has a working electrode in contact with at least one reagent. For this reason, Fritsch et al. does not anticipate claim 1, as amended.

Claims 12, 18, and 19 were rejected under 35 U. S. C. §103 (a) as being unpatentable over the English language translation of Urban (WO 90/12314 A1) in view of Fritsch et al. (US 2003/0015422 A1). This rejection is respectfully traversed for the following reasons.

As shown previously, according to each embodiment described in Urban, one major surface of the electrode 2 is in contact with the inert carrier 5, but the other major surface of the electrode 2 is exposed, i.e., not in contact with the insulation layer 4 or with the inert carrier 5. Claims 1-3, 5-14, and 16-21, as amended, require that each major surface of each conducting layer be in contact with a major surface of the insulating substrate or a major surface of at least one of the insulating layers. For this reason, Urban alone does not render claims 12, 18, and 19 obvious to one of ordinary skill in the art. As shown previously, Fritsch et al. does not disclose or suggest that that the cavity electrode system described therein has a working electrode in contact with at least one reagent. Claim 1 requires that the working electrode be in contact with at least one reagent. Claims 12, 18, and 19 include all of the features recited in claim 1, as amended. Accordingly, even if the features described in Urban were combined with the features described in Fritsch et al., the resulting combination would not result in an article in which each major surface of each conducting layer is in contact with a major surface of the insulating substrate or a major surface of at least one of the insulating layers and that the working electrode be in contact with at least one reagent. For these reasons, the combination of Urban and Fritsch et al. fails to render claims 12, 18, and 19 obvious to tone of ordinary skill in the art.

In view of the foregoing, it is submitted that claims 1-3, 5-14, and 16-21, as amended, are in condition for allowance, and official Notice of Allowance is respectfully requested.

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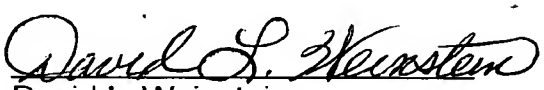

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